

What is Claimed is:

1. A lancing device comprising:
a housing;
a cassette removably mounted within said housing, said cassette comprising at least one lancet having a lancet body and a protective cap;
a piston for propelling the lancet along a path of travel, said piston releasably engaging the lancet and causing separation of the lancet body and the protective cap along at least a portion of the path of travel of the lancet.
2. The lancing device of Claim 1, wherein the cassette further comprises a biasing element for moving the protective cap out of the path of travel of the lancet after separation of the protective cap from the lancet body.
3. The lancing device of Claim 2, wherein the cassette further comprises at least one guide post engaging the protective cap to guide said protective cap out of the path of travel of the lancet.
4. The lancing device of Claim 3, wherein the protective cap comprises a pair of recesses in opposite sides thereof, and wherein a pair of guide posts are slidably engaged in said recesses to guide said protective cap out of the path of travel of the lancet.
5. The lancing device of Claim 1, further comprising a cocking mechanism for arming the piston.
6. The lancing device of Claim 5, wherein the cassette comprises a plurality of lancets, and wherein actuation of the cocking mechanism advances the cassette to sequentially engage each of said plurality of lancets with said piston.
7. The lancing device of Claim 5, wherein actuation of the cocking mechanism retracts said piston to cause separation of the lancet body and the protective cap.
8. The lancing device of Claim 1, wherein said cassette comprises a plurality of lancets radially arranged about an axis.
9. The lancing device of Claim 8, wherein said cassette further comprises radially extending guides defining the path of travel of the lancet.

10. The lancing device of Claim 8, wherein said plurality of lancets lie in a plane, and wherein the piston propels the lancet along a path of travel within that plane.
11. The lancing device of Claim 8, further comprising a cocking mechanism for sequentially advancing the cassette through a series of positions wherein one of said plurality of lancets is engaged with said piston.
12. The lancing device of Claim 11, wherein actuation of the cocking mechanism drives the piston to separate the lancet body from the protective cap.
13. The lancing device of Claim 8, wherein said cassette further comprises a retainer having a plurality of spring elements extending therefrom, said spring elements engaging the protective caps of said plurality of lancets to move the protective caps out of the path of travel after separation of the protective cap from the lancet body.
14. The lancing device of Claim 13, wherein said retainer further comprises a plurality of guide tongues for defining the path of travel of said lancets.
15. The lancing device of Claim 13, wherein each of said spring elements comprises a generally U-shaped loop.
16. The lancing device of Claim 1, wherein the lancet body and the piston comprise interengaging coupling elements, said interengaging coupling elements comprising a tapered lead-in section for aligning said lancet body and said piston for engagement.
17. The lancing device of Claim 1, wherein each lancet further comprises a resilient tongue extending from the lancet body.
18. The lancing device of Claim 1, wherein said housing resembles a wristwatch housing, and further comprising a wristband.
19. The lancing device of Claim 1, further comprising sample collection and analysis media.
20. The lancing device of Claim 1, wherein said cassette further comprises an alignment indicator for identifying proper alignment of said cassette with the housing upon installation.

21. A lancing device comprising:

at least one lancet having a sharp tip and a protective cap covering said sharp tip;

a spring for driving the at least one lancet from a first position to a second position;

a cocking mechanism for loading said spring and removing the protective cap from said at least one lancet in a single continuous cocking motion.

22. A lancing device comprising:

at least one lancet having a protective cap;

a piston for engaging said at least one lancet and separating said protective cap from said lancet; and

a biasing element for moving said protective cap out of a path of travel of said lancet.

23. A lancing device comprising:

a plurality of lancets;

a biasing element for driving each of said plurality of lancets along a path of travel; and

a cocking mechanism for sequentially engaging successive lancets and arming said biasing element.

24. A lancing device comprising:

at least one lancet movable along a path of travel;

means for removing a protective cap from said at least one lancet; and

biasing means for moving the removed protective cap out of the path of travel of said lancet;

wherein said path of travel extends through said biasing means.

25. A lancing device comprising multiple lancets, each lancet having a body with an elongated lancing tip mounted therein, each lancet body having at least one grip flange for cooperation with a cocking mechanism, configured and positioned to apply a tensile force generally coaxial with the axis of the lancing tip.

26. The lancing device of Claim 25, wherein the at least one grip flange is located adjacent an end of the lancet body to provide for more stable movement during and after cocking.

27. The lancing device of Claim 25, wherein each lancet body has guide surfaces to guide the lancet for stable movement in translation, without substantial rotation or twisting of the lancet body.

28. A lancing device comprising a plurality of lancets and a drive mechanism for sequentially engaging each of said plurality of lancets and driving said lancet between a first position and a second position along an axis of translation, wherein the drive mechanism comprises a piston movable along an axis that is coaxial with the axis of translation of the lancet.

29. A lancing cassette comprising:

- a plurality of lancets, each lancet comprising a lancet body, a lancet tip extending from one end of the lancet body, and a protective cap covering the sharp lancet tip;

- a carrier defining a path of travel for each of said plurality of lancets; and

- a retainer for retaining each of said plurality of lancets on its defined path of travel.

30. The lancing cassette of Claim 29, wherein the carrier comprises at least one guide post, and wherein the protective cap of the lancet comprises a recess engaging each said guide post.

31. The lancing cassette of Claim 30, wherein the protective cap of each lancet comprises a pair of recesses on opposed sides thereof, and wherein the carrier comprises a guidepost engaging each of said recesses to constrain the protective cap to linear motion.

32. The lancing cassette of Claim 29, further comprising a recession in said carrier for receiving the protective cap of each of said plurality of lancets, and retaining said protective caps out of the path of travel of the lancets.
33. The lancing cassette of Claim 29, wherein the carrier comprises a pair of upright walls defining a path of travel for each of said plurality of lancets.
34. The lancing cassette of Claim 33, wherein said retainer comprises a tongue further defining the path of travel for each of said plurality of lancets.
35. The lancing cassette of Claim 29, wherein said retainer comprises a plurality of spring elements, said spring elements biasing the protective caps of said plurality of lancets out of the path of travel of the lancet.
36. The lancing cassette of Claim 35, wherein each of said plurality of spring elements comprises a generally U-shaped loop.
37. The lancing cassette of Claim 29, wherein the carrier is a generally circular disk, and wherein the plurality of lancets are arranged generally radially about a central axis of the carrier.
38. The lancing cassette of Claim 37, wherein the path of travel for each of said plurality of lancets is along a plane defined by the carrier.
39. The lancing cassette of Claim 29, wherein each lancet body comprises a flared end opposite the lancet tip for engagement with a drive mechanism.
40. The lancing cassette of Claim 39, wherein the flared end of each lancet body comprises a tapered lead-in portion.
41. The lancing cassette of Claim 29, wherein each lancet body comprises a resilient tongue.
42. The lancing cassette of Claim 29, further comprising an alignment indicator.
43. The lancing cassette of Claim 42, wherein said alignment indicator is positioned in a clear section of said carrier between adjacent lancets.
44. The lancing cassette of Claim 29, further comprising sample collection and analysis media.

45. The lancing cassette of Claim 29, further comprising a series of engagement teeth on one face thereof.

46. A lancing cassette comprising:

at least one lancet having a protective cap mounted thereon;

a spring for moving the protective cap away from each said lancet; and

at least one guide constraining the protective cap along a path of travel under the influence of said spring.

47. The lancing cassette of Claim 46, wherein said spring comprises a flat section in engagement with the protective cap of each said lancet.

48. A lancing cassette comprising:

a carrier;

a retainer mounted to said carrier; and

at least one lancet retained between said carrier and said retainer.

49. The lancing cassette of Claim 48, further comprising a spring held in engagement with said at least one lancet.

50. The lancing cassette of Claim 48, wherein said carrier and said retainer define a linear path of travel for each said lancet.

51. The lancing cassette of Claim 50, wherein said carrier and said retainer constrain each said lancet against rotational movement.

52. A lancing cassette for removable insertion within a lancing device, said cassette comprising:

a plurality of lancets; and

a series of engagement teeth for cooperative engagement with an advancing mechanism of the lancing device.

53. The lancing cassette of Claim 52, further comprising a cantilevered arm comprising a locating finger for alignment within a cartridge alignment recess of the lancing device.

54. The lancing cassette of Claim 52, further comprising a cartridge stop for preventing re-use of the plurality of lancets.

55. The lancing cassette of Claim 52, wherein said series of engagement teeth permit advancement of said cassette in a first direction and prevent advancement of the cassette in a second direction opposite the first direction.
56. The lancing cassette of Claim 52, further comprising at least one clip for engaging a sensor element.
57. The lancing cassette of Claim 52, wherein said plurality of lancets are arranged radially about a central axis on a generally circular disk, and said series of engagement teeth are arranged in a ring coaxial with the central axis.
58. A lancing cassette comprising a plurality of lancets mounted to a carrier, each of said plurality of lancets movable along said carrier between a retracted position and an extended position, at least one of said carrier and said lancets comprising a stop for limiting motion of said lancets beyond at least one of said retracted position and said extended position.
59. A micro-lancet comprising:
a lancet body;
a sharp lancet tip extending from a first end of said lancet body; and
a protective cap overlying the sharp lancet tip, and defining at least one recess for engagement with an external guide.
60. The micro-lancet of Claim 59, further comprising a flared second end opposite the sharp lancet tip, for engagement with a drive mechanism.
61. The micro-lancet of Claim 60, wherein the flared second end comprises a tapered lead-in portion.
62. The micro-lancet of Claim 59, wherein said protective cap comprises a pair of recesses on opposed sides thereof, defining a generally H-shaped element.

63. A micro-lancet comprising:

a polymeric lancet body having a first end and a second end; and

a needle extending through the lancet body and having a sharp tip projecting from the first end of said lancet body, wherein the end of said needle opposite the sharp tip is cut substantially flush with the second end of the lancet body.

64. A micro-lancet comprising:

a lancet body having a first end and a second end;

a needle having a sharp lancing tip projecting from the first end of said lancet body; and

a protective cap covering the sharp lancing tip, said protective cap being integrally formed with the lancet body and connected to the lancet body by two webs of material spaced on either side of said needle.

65. The micro-lancet of Claim 64, wherein the two webs of material spaced on either side of said needle are cut through a portion of their thickness.

66. A micro-lancet comprising a lancet body having a first end and a second end, a sharp lancing tip projecting from the first end of said lancet body, and a flange projecting transversely outward from the second end of said lancet body.

67. The micro-lancet of Claim 66, comprising a first flange projecting transversely outward from a first side of the lancet body and a second flange projecting transversely outward from an opposing second side of the lancet body.

68. The micro-lancet of Claim 66, wherein said flange comprises a tapered alignment edge.